

# SONY

**SMO-F551 / RMO-S551**

***Magneto-Optical  
Disk Drive***

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**Installation Guide**

**1.3**

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## Printing History

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### Note:

SMO-F551 / RMO-S551 support many kind of MO media, but all kind of MO media can not be used in each Operation System. (Refer page19 table-1,-2) Please choose suitable MO media in accordance with supported media table.

## **Installation Procedure on DOS and Windows3.1**

### **Requirements:**

#### **1. SCSI host adapter**

SCSI host adapter controls the command and data transfer between MO drive and host computer. (Ex. AHA-2940, AHA-3940 of Adaptec)

#### **2. Device driver**

Device driver controls MO drive. Device driver is almost supplied with SCSI host adapter. If you use RMO-S551, we recommend to use the "Formatter One Pro™" bundled with RMO-S551.

#### **3. SCSI cable**

SCSI cable is used for connecting host adapter and MO drive. Please select proper SCSI cable.

#### **4. Format utility software**

Format utility software is used to format the media and make partitions. Format utility software is often supplied with SCSI host adapter. (e.g. ASPI manager and ASPI driver for AHA-29xx are provided from Adaptec) But if you use RMO-S551, we recommend to use the "Formatter One Pro™" bundled with RMO-S551.

### **Installation:**

#### **1) Connection**

- Set the SCSI host adapter into the host computer.
- Attach the MO drive to the SCSI host adapter using proper SCSI cable.
- Set proper SCSI ID and termination on the MO drive.

#### **2) Install the device driver**

- Turn on the MO drive and host computer.
- Install the device driver on DOS level or on Windows3.1 and reboot host computer.

#### **3) Format the media and partition**

- Format and Label the media using a format utility tool, such as "Formatter One Pro™".

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### **Note:**

- DOS and Window3.1 limit one partition size to 2.1GB. Please make a partition under 2.1GB per partition.
- "Formatter One Pro™" supports all kind of MO media (4.1GB, 4.8GB, 5.2GB), but some device driver does not support 4.8GB or 5.2GB media. Please confirm the proper media before using the device driver. If you have any questions, please contact your dealer of the device driver.
- DOS and Windows3.1 do not support WORM media.
- Before rebooting a host PC, please don't replace other media of a different sector size.

## Installation Procedure on Windows95/98

### Requirement:

#### 1. SCSI host adapter

SCSI host adapter controls the command and data transfer between MO drive and host computer. (Ex. AHA-2940, AHA-3940 of Adaptec) Most of SCSI host adapters are supported by Windows95/98.

#### 2. Device driver

Device driver controls MO drive. Windows95/98 encloses the device driver on installation CD-ROM or floppy disk. If you use RMO-S551, we recommend to use the "Formatter One Pro™" bundled with RMO-S551.

#### 3. SCSI cable

SCSI cable is used for connecting host adapter and MO drive. Please select proper SCSI cable.

#### 4. Format utility software

Format utility software is used to format the media and make partitions. Format utility software is often supplied with SCSI host adapter. If you use RMO-S551, we recommend to use the "Formatter One Pro™" bundled with RMO-S551.

### Installation:

#### 1) Connection

- Set the SCSI host adapter into the host computer.
- Attach the MO drive using proper SCSI cable.
- Set proper SCSI ID and termination on the MO drive.

#### 2) No device driver

##### 2)-1 Preparation

- Turn on the drive and insert the media.
- Turn on the power of the host system and boot Windows95/98.

##### 2)-2 To detect the connected hardware

- Click the Start button, point to Setting, a system and boot Windows95/98.
- Click Add New Hardware icon.
- Follow the instructions on display

##### 2)-3 Format and Label the media

- Double-click My Computer icon to view various drive icons.
- Highlight the Removable drive icon
- Point on File, and click Format option to initialize and label media.

### **3) Install the device driver**

#### **3)-1 Preparation**

- Turn on the MO drive and host computer.
- Install the device driver on Windows95/98 and reboot the host computer. (Please refer to the user's guide of the Device Driver)

#### **3)-2 Format the media and partition**

- Format and Label the media using format utility software, such as "Formatter One Pro <sup>TM</sup>".

#### **Note:**

- Windows95/98 limits one partition size to 2.1GB, please make a partition under 2.1GB per partition.
- Don't use floppy format for 4.8GB and 5.2GB Media, because the partition size is over 2.1GB.
- "Formatter One Pro <sup>TM</sup>" supports all kind of MO media (4.1GB, 4.8GB, 5.2GB), but some device driver or native Windows95/98 system do not support 4.8GB or 5.2GB media. Please confirm the proper media before using the device driver. If you have any question, please contact your dealer of the device driver.
- Windows95/98 does not support WORM media.
- Before rebooting a host PC, please don't replace other media of a different sector size.

## **Installation Procedure on WindowsNT**

### **Requirement:**

#### **1. SCSI host adapter**

SCSI host adapter controls the command and data transfer between MO drive and host computer. (Ex. AHA-2940, AHA-3940)

#### **2. Device driver**

Device driver controls MO drive. WindowsNT include the Device Driver. If you use RMO-S551, we recommend to use the "Formatter One Pro™" is supplied with RMO-S551.

#### **3. SCSI cable**

SCSI cable is used for connecting host adapter and MO drive. Please select proper SCSI cable.

#### **4. Format Utility software**

Format utility software is used to format media and make partitions. Format utility is often supplied with SCSI host adapter. If you use RMO-S551, we recommend to use the "Formatter One Pro™" bundled with RMO-S551.

### **Installation:**

#### **1) Connection**

- Set the SCSI host adapter into the host computer.
- Attach the MO drive using proper SCSI cable.
- Set proper SCSI ID and termination on the MO drive.

#### **2) No device driver**

##### **2)-1 Preparation**

- Turn on the drive and insert the media.
- Turn on the power of the host system and boot WindowsNT.
- Let it Autoconfigure the hardware.

##### **2)-2 Format the media and partition**

- a) Click the Start button and point to Program "Administrative Tools".  
Click on Disk Administrator
- Verify to write signature to the media.
  - Highlight the drive icon to be partitioned.
  - Click on File, then Create Partition
  - Choose partition parameters and click OK.
  - Close Disk Administrator....save changes when asked.

b) Click on Disk Administrator again

- Highlight the partitioned drive icon.
- Click on Tools, then Format.

Choose format type (see **Notes**) and volume label name.

- Format the media.
- Close Disk Administrator.

### **3) Install the device driver**

#### **3)-1 Preparation**

- Login WindowsNT
- Install the device driver on WindowsNT and reboot the host computer. (Please refer to the user's guide of the Device Driver)

#### **3)-2 Format the media and partition**

- Format and Label the media using format utility software, such as "Formatter One Pro <sup>TM</sup>",

#### **Note:**

- There are two format types that Disk Administrator supports.
  - 1) FAT: allows media to be removed easily.
  - 2) NTFS: 'locks' the media into the drive.
- "Formatter One Pro <sup>TM</sup>" support only FAT16 file system. If you would like to use NTFS file system, please use disk administrator after logging as administrator.
- "Formatter One Pro <sup>TM</sup>" supports all kind of MO media (4.1GB, 4.8GB, 5.2GB), but some device driver or native WindowsNT system do not support 4.8GB or 5.2GB media. Please confirm the proper media before using the device driver. If you have any question, please contact your dealer of the device driver.
- When you format 4.8GB or 5.2GB media using disk administrator, please select NTFS file system.
- WindowsNT does not support WORM media.
- Before rebooting a host PC, please don't replace other media of a different sector size.



## Installation Procedure on SUN System

### Test equipment:

The following procedure was confirmed with the following system and drive combination:

Host:	SUN Ultra Enterprise 450
OS:	Solaris 2.3, Solaris 2.4, Solaris 2.5.1, Solaris 2.6
Target:	RMO-S551
	- device type is set to 0
	- 512 byte/sector media is used.

Since the SCSI driver "sd" which comes with the SUN's UNIX system is for device type 0 (hard disk drive, in general), the cases with device type 7 or 1024 bytes/sector media are not supported.

### Installation:

#### 1) Connection

- Set the SCSI host adapter into the host computer using proper SCSI cable.
- Set proper SCSI ID on the MO drive.
- Set proper termination.
- Set the Device Type 0.

#### 2) Login

- Turn on the MO drive and the host computer.
- Login as root or be a super user with "su" command.

#### 3) Format and partition

To make a disk accessible, perform the following three command:

- 'format': using to format media.
- 'newfs': using to make file system.
- 'mount': using to mount media.

Create a 'format.dat' file prior to issuing the 'format' command

#### 4) Edit "format.dat" file

- add following configuration to the "format.dat".

```
#
# This is a list of sample Sony 5.25 inch MO disk configurations.
#
disk_type = "ISO 4X MO disk, 1150MB" ¥
      : ctrl = SCSI : fmt_time = 2 ¥
      : ncy1 = 2261 : acyl = 2 : pcy1 = 2263 : nhead = 32 : nsect = 31¥
      : rpm = 3600 : bpt = 15872
disk_type = "ISO 8X MO disk, 2035MB" ¥
```

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```
: ctrl = SCSI : fmt_time = 2 ¥
: ncy1 = 4003 : acyl = 2 : pcy1 = 4005 : nhead = 32 : nsect = 31 ¥
: rpm = 3300 : bpt = 15872

#
# This is a list of sample partition tables for Sony 5.25 inch MO disk.
#
partition = "ISO 4X MO disk, 1150MB" ¥
: disk = "ISO 4X MO disk, 1150MB" : ctrl = SCSI ¥
: 0 = 0 , 0 : 1 = 0, 0 : 2 = 0, 2242912 :
partition = "ISO 8X MO disk, 2035MB" ¥
: disk = "ISO 8X MO disk, 2035MB" : ctrl = SCSI ¥
: 0 = 0 , 0 : 1 = 0, 0 : 2 = 0, 3970976 :
```

### Note:

- SUN System supports only 512 byte/sector MO media, you can use 2.3GB and 4.1GB media. If you would like to use 1024 byte/sector or 2048 byte/sector media, please use a proper device driver software for SUN system.

## Installation Procedure on Silicon Graphics Systems

### Test equipment:

The following procedure was confirmed with the following system and drive combination:

Host:	SGI O2 R5000, R10000
OS:	IRIX6.3
Target:	RMO-S551

### Installation:

#### 1) Connection

- Attach the drive to the host using a proper SCSI cable.
- Set proper SCSI ID on the MO drive. (In this case, SCSI ID = 4)
- Set proper termination.

**Note:** The SCSI ID number should be unique for each SCSI devices. The "hinv" command in the maintenance mode of the SGI workstation is useful to determine SCSI ID numbers.

#### 2) Login

- Turn on the MO drive and host computer.
- Log in as root.
- Confirm the connection of MO drive and UNIX Workstation using following command.

```
Port2# #hinv -c scsi
Optical disk : unit 4 on SCSI controller 1
```

#### 3) Media Initialization

- Launch the Unix Shell and insert a cartridge into the drive
- Enter "fx-x" at the Unix Shell prompt

Format the media using following commands.

```
port0 3# fx -x [enter]
fx version 6.3, July xx, 1998
fx: "device name" = (dksc) [enter]
fx: ctlr# = (0) 1 [enter]
fx: drive# = (1) 4 [enter]
... opening dksc(1,4)
... controller test. . . OK
.
.
```

```

.
.

----- please choose one (? for help, .. to quit this menu)-----
[exi]t          [d]ebug/          [l]abel/          [a]uto
[b]adblock/     [ex]cise/         [r]epartition/   [f]ormat
fx> f
fx/format: drive parameter to use in formatting = (current) [enter]
*****WARNING*****
about to destroy data on disk dksc(1,4)! Ok? Yes [enter]
.
.

```

#### 4) Repartition the media

Repartition the media from “root drive” to “option drive” using following commands.

```

----- please choose one (? for help, .. to quit this menu)-----
[exi]t          [d]ebug/          [l]abel/          [a]uto
[b]adblock/     [ex]cise/         [r]epartition/   [f]ormat
fx> r [enter]

----- partitions-----
part  type      cyls          blocks          Megabytes  (base+size)
0: xfs        6 + 7243      3072 + 3708416  1 + 1811
1: raw        7249 + 512    3711488 + 262144 1812 + 128
8: volhdr     0 + 6         0 + 3072         0 + 1
10: volume    0 + 7761      0 + 3973632     0 + 1940
capacity is 3973952 blocks

```

```

----- please choose one (? for help, .. to quit this menu)-----
[ro]otdrive     [o]ptiondrive    [e]xpert
[u]srootdrive   [re]size
fx/repartition> o [enter]

fx/repartition/optiondrive: type of data partition = (xfs) [enter]
fx/repartition/optiondrive: create usr log partition? = (yes) [enter]

```

Warning: You will need to re-install all software and restore user data from backups after changing the partition layout.

Changing partitions will cause all data on the drive to be lost.

Be sure you have the drive backed up if it contains any user data.

Continue? **Yes [enter]**

Can't get drive geometry, assuming 64 sectors/track

Can't get drive geometry, assuming 8 heads

Unable to get device geometry, assuming default

```

----- partitions-----
part  type      cyls          blocks          Megabytes (base+size)
   7: xfs        6 + 7738      3072 + 3961856  1 + 1934
   8: volhd      0 + 6         0 + 3072        0 + 1
  10: volume     0 + 7761      0 + 3973632    0 + 1940
  15:xfslog     7744+17      3964928 + 8704 1936 + 4
capacity is 3973952 blocks

```

```

----- please choose one (? for help, .. to quit this menu)-----
[ro]otdrive      [o]ptiondrive  [e]xpert
[u]srrootdrive   [re]size
fx/repartition> ..

```

### 5) Confirm the partition

Confirm the partition using following commands.

```

----- please choose one (? for help, .. to quit this menu)-----
[exi]t           [d]ebug/        [l]abel/         [a]uto
[b]adblock/      [exe]rcise/     [r]epartition/   [f]ormat
fx> l [enter]

```

```

----- please choose one (? for help, .. to quit this menu)-----
[sh]ow/          [sy]nc          [se]t/           [c]reate/
fx/label> sh [enter]

```

```

----- please choose one (? for help, .. to quit this menu)-----
[para]meters     [part]itions    [b]ootinfo       [a]ll
[g]eometry       [s]giinfo       [d]irectory
fx/label/show> para [enter]

```

```

----- please choose one (? for help, .. to quit this menu)-----
[para]meters     [part]itions    [b]ootinfo       [a]ll
[g]eometry       [s]giinfo       [d]irectory
fx/label/show> part [enter]

```

```

----- partitions-----
part  type      cyls          blocks          Megabytes (base+size)
   7: xfs        6 + 7738      3072 + 3961856  1 + 1934
   8: volhd      0 + 6         0 + 3072        0 + 1
  10: volume     0 + 7761      0 + 3973632    0 + 1940
  15:xfslog     7744+17      3964928 + 8704 1936 + 4

```

---- please choose one (? for help, .. to quit this menu)----

```
[p]arameters      [p]artitions      [b]ootinfo      [a]ll
[g]eometry        [s]giinfo         [d]irectory
fx/label/show> .. [enter]
```

---- please choose one (? for help, .. to quit this menu)----

```
[s]how/          [s]ync            [s]et/          [c]reate/
fx/label> .. [enter]
```

---- please choose one (? for help, .. to quit this menu)----

```
[e]xit          [d]ebug/         [l]abel/        [a]uto
[b]adblock/    [e]xercise/     [r]epartition/ [f]ormat
fx> exit [enter]
```

## 6) Make a file system

Make a file system using following command.

```
port0 7# mkfs /dev/rdisk/dks1d4s7 [enter]
```

```
meta-data=/dev/rdisk/dks1d4s7      isize=256      agcount=8, agsize=61904 blks
data      =                          bsize=4096    blocks=495232, imaxpct=25
log       =internal log             bsize=4096    blocks=1000
realtime  =none                      extsz=65536   blocks=0, rtextents=0
```

## 7) Mount the media

Mount the media and confirm the result.

```
( # mkdir /mo [enter] ← creat mount point)
```

```
port0 8# mount /dev/dsk/dks1d4s7 /mo [enter]
```

```
port0 9# df /mo [enter]
```

File system	Type	blocks	use	avail	%use	Mounted on
/dev/dsk/dks1d4s0	xf	3700416	288	3700128	1	/mo

### Note:

As O2 supports only 512 Byte/sector MO media, you can use 2.3GB and 4.1GB MO media.

## Installation Procedure on HP Systems

### Test equipment:

The following procedure was confirmed with the following system and drive combination:

UNIX Workstation:	HP9000/712
OS:	HP-UX A.09.07
Target:	RMO-S551

### Installation:

#### 1) Connection

- Connect MO drive and UNIX Workstation using proper SCSI cable.
- Set proper SCSI ID on the MO drive. (In this case, SCSI ID = 4)
- Set proper termination.

**Note:** The 'ioscan' command is useful to scan SCSI bus.

```
# ioscan -fc disk [enter]
```

#### 2) Login

- Turn on the MO drive and the host computer, and insert a cartridge into the drive.
- Login as root.
- Confirm the connection of MO drive and UNIX Workstation using following command.

```
# diskinfo -v /dev/rdisk/c201d4s0 [Enter]
```

```
SCSI describe of /dev/rdisk/c201d4s0 *[4.1GB(4.8GB, 5.2GB)]
Vendor          : SONY
product id     : SMO-F551
type           : optical memory
size           : 1986976 Kbytes (2319786, 2526944)
bytes per sector : 512(1024, 2048)
rev level      : 1.08
blocks per disk : 3973952 (2319786, 1263472)
ISO version    : 0
ECMA version   : 0
ANSI version   : 2
removable media : yes
response format : 2
```

If the workstation return an error "diskinfo : can't open /dev/rdisk/c201d1s0", MO drive is not connected with UNIX workstation correctly. You should shut down the system and check the SCSI cable and SCSI terminator.

**3) Edit “disktab” file**

- Edit or add /etc/disktab file as following.

```
#####
# Sony Magneto-Optical Media
#####
SONY_MO_8X_2048:¥
    :No swap or boot:ns#39:nt#16:nc#3997:¥
    :s0#2494170:b0#8192:f0#2048:¥
    :se#2048:rm#3300:
SONY_MO_8X_1024:¥
    :No swap or boot:ns#39:nt#16:nc#3671:¥
    :s0#2290750:b0#8192:f0#1024:¥
    :se#1024:rm#3300:
SONY_MO_8X_512:¥
    :No swap or boot:ns#39:nt#16:nc#3131:¥
    :s0#1954200:b0#8192:f0#1024:¥
    :se#512:rm#3300:
```

**4) Format Media**

- Format the media using following command. You must execute this command only one time when you use the media first time.

```
# mediainit -v /dev/rdisk/c201d0s0 [Enter]
```

It takes about 45 minutes.

**5) Create a file system**

- Create a file system using following command.

```
# newfs /dev/rdisk/c201d1s0 Media_type [Enter]
```

Media type : Please input proper sentence (refer disktab, ex SONY\_MO\_8X\_512)

**6) Mount the media**

- Mount the media using following commands.

```
# mkdir /mo [Enter]
```

```
# mount /dev/dsk/c201d1s0 /mo [Enter]
```



**7) Confirm the result of mount command**

- Confirm the result of mount command using following command.

**# bdf /mo [Enter]**

(ex.4.1GB)

Filesystem	kbytes	used	avail	capacity	Mounted on
/dev/dsk/c201d4s0	1900868	9	1710772	0%	/mo

(ex.4.8GB)

Filesystem	kbytes	used	avail	capacity	Mounted on
/dev/dsk/c201d4s0	2228170	9	2005344	0%	/mo

(ex.5.2GB)

Filesystem	kbytes	used	avail	capacity	Mounted on
/dev/dsk/c201d4s0	2426150	10	2183524	0%	/mo

**Note:**

- You can not use GUI tool to format and mount the media. Please use shell commands.

**Appendix:** Edit or add /etc/disktab file for 4XMO disk

```
#####
# Sony Magneto-Optical Media
#####
SONY_MO_4X_1024:¥
    :No swap or boot:ns#39:nt#16:nc#1988:¥
    :s0#1240240:b0#8192:f0#1024:¥
    :se#1024:rm#3600:
SONY_MO_4X_512:¥
    :No swap or boot:ns#39:nt#16:nc#1773:¥
    :s0#1106088:b0#8192:f0#1024:¥
    :se#512:rm#3600:
```

## Installation Procedure on SantaCruzOperation Systems

### Test equipment:

The following procedure was confirmed with the following system and drive combination:

Host:	PC-UNIX_SCO
OS:	UnixWare 2.1, UnixWare 7
Target:	RMO-S551

### Installation:

#### 1) Hardware Installation

- Attach the drive to the system using a SCSI cable.
- Set proper SCSI ID and termination.
- Set proper Functional Switch.

**Note:** Device type; Direct Memory Access Device Placing a jumper socket over the desired pair of pins A10/B10 turn "Direct Memory Access Device" function ON. (Please refer to Page 17-20 of Technical Guide for SMO-F551.)

- Turn on the drive and insert the media.

#### 2) Turn on the power of the host system

#### 3) To use "diskadd" command to mount the disk on the system

**Note:** The "diskadd" command is the type of conversation command. So it asks you some questions of to need the information under operation. Please refer to the online manual of UNIX\_SCO on detail.

#### 4) To unmount disk on the system

**Note:** It needs to operate the "umount " before the eject of MO media.

**Appendix**

OS	DOS	Window3.1	Windows95/98	WindowsNT
4.1GB media	O	O	O	O
4.8GB media	O*1	O*1	O*1	O*1
5.2GB media	O*1	O*1	O*1	O*1

**Table 1. Media support table-1**

\*1: with using Formatter One Pro

OS	SUN Systems	SGI Systems	HP Systems	SCO Systems
4.1GB media	O	O	O	O
4.8GB media	X	X	O	X
5.2GB media	X	X	O	X

**Table 2. Media support table-2**

Capacity	Name	Sector Size
4.1GB	EDM-4100	512 Byte/sector
4.8GB	EDM-4800	1024 Byte/sector
5.2GB	EDM-5200	2048 Byte/sector

**Table 3. Media information table**